EnGenius | DATASHEET

802.11b/g/n SOHO Router ***ESR9850***

2.4GHz **300Mbps** **Gigabit** **11N Router / Repeater**

PRODUCT DESCRIPTION

ESR9850 is a 2T2R Wireless 11N Gigabit Router that delivers up to 6x faster speeds and 3x extended coverage than 802.11g devices. ESR9850 supports home network with superior throughput and performance and unparalleled wireless range. With easy to use on the WPS function, it helps users to connect to wireless device with just one push button.

There's also a built-in 4-port full-duplex 10/100/1000/1000 Fast Switch to connect your wired-Ethernet devices together. The Router function ties it all together and lets your whole network shares a high-speed cable or DSL Internet connection.

PACKAGE CONTENT

- 1* 802.11n SOHO Router (ESR9850)
- 1* 12V/1A Power Adapter
- 1*QIG
- 1*CD (User's Manual)
- 2 *2dBi SMA antenna

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice. 4/28/2010

Technical Specifications

HARDWARE SPECIFICATIONS

MCU	RT3052, 384MHz embedded RF/MAC/BBP Gigabit: Realtek 8366RB
Memory	32MB SDRAM (16 + 16; enhanced performance)
Flash	4MB
PCB dimension	150mm * 100mm
Physical Interface	WAN: One 10/100/1000 Fast Ethernet RJ-45 LAN: Four 10/100/1000 Fast Ethernet RJ-45 Rest button Power Jack WPS (WiFi Protected Setup)
LEDs Status	Power Status WAN (Internet connection) LAN1~LAN4 WLAN(Wireless connection)
Power Requirements	Power Supply: 200 to 240 VDC ± 10% (ETSI) 100 to 120 VDC ± 10% (FCC) Device: 12V/1A

RF SPECIFICATION

Frequency Band	2.400～2.484 GHz
Modulation Technology	● OFDM: BPSK, QPSK, 16-QAM, 64-QAM ● DBPSK, DQPSK, CCK
Operating Channels	11 for North America, 14 for Japan, 13 for Europe

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice. 4/28/2010

Wireless Setting

- Wireless Mode ï 11b/ 11g /11n
- Channel Selection (Setting varies by Country)
- Channel Bandwidth (Auto, 20Mhz, 40Mhz)
- Transmission Rate

  -11g: Best. 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 in Mbps

MCS index	Guard Interval 800ns		Guard Interval 400ns	
	20MHz(Mbps)	40MHz(Mbps)	20MHz(Mbps)	40MHz(Mbps)
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	157.5
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300

Receive Sensitivity (Typical)

- IEEE802.11n(2RX)

  MCS0/8 @ -91dBm

  MCS7/15@ -74dBm
- IEEE802.11g (2RX)

  6Mbps@ -92dBm

  54Mbps@ -75dBm
- IEEE802.11b (1RX)

  1Mbps@ -93dBm

  11Mbps@ -91dBm

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice. 4/28/2010

Available transmit power	● IEEE802.11N MCS 0~15@ typical 16 dBm ● IEEE802.11g 6~54 Mbps@ typical 16 dBm ● IEEE802.11b 1, 11Mbps@ typical 17 dBm
Antenna *2	Peak Gain = 2 dBi

SOFTWARE FEATURES

System

System OS	Linux OS	System boot up time is <= **45 Sec**

Utility

Easy Setup Wizard	**Y**

Router User Interface

Access method	Web Based (HTTP 1.0 / 1.1)
Browser Compatibility	Microsoft Internet Explorer 5.5/6/7 , Safari Ver1.2,Firefox 2.0 or later

Status

System Status	System Information	Y	**System Up Time**, Device Name, Wireless MAC, LAN MAC, Country, **Current Time**, Firmware Version, Management VLAN ID
	Current IP Setting	Y	IP Address, Subnet Mack, Default Gateway, DHCP
	Current Wireless Setting	Y	Operation mode, Wireless Mode, Channel/ Frequency, L2 Isolation, MSSID Setting **2.4Ghz TX/RX: packet counts & traffics in Kbytes**
Client List	List current associated clients. Show only authorized and associated clients		
	Y	SSID	
	Y	MAC address	

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice. 4/28/2010

	Y	Channel
	Y	Security Type
	Y	Mode (Infrastructure / Ad-hoc)
	Y	Traffic in Kbytes
System Log	displays a list of events that are triggered on the Ethernet and Wireless interface. This log can be referred to when an unknown error occurs on the system or when a report needs to be sent to the technical support department for debugging purposes	

Wireless Functional List

Wireless Radio On/Off button	Y	Software button / Disable or Enable WiFi radio
Operation mode	Y	AP
	Y	Router
	Y	WDS AP
	N	WDS Bridge
	N	CB (2.5 NAT)
	Y	Repeater
Switch of 802.11 modes	Y	B/G/N
Channel setting	Y	Manual
	Y	Auto / Best Channel Selection
Transfer rate setting	Y	Auto and Manual
Output Power Control	Y	**10% / 25% / 50% / 75% / 100%**
Distance Control bar & ACK timeout Setting	N	use **KM** instead of numbers
RSSI Indicator	N	CB/ CR/ Repeater Mode
Signal Strength	N	CB/ CR/ Repeater
WiFi QoS	Y	WMM
Power Saving	Y	Wireless LAN power saving
Multiple BSSID (Multi AP)	Y	4 BSSID for 2.4Ghz
	N	4 BSSID for 5Ghz
	Y	Each BSSID should has its own WiFi & security settings

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice. 4/28/2010

WPS		Y	WPS : Enable / Disable Wi-Fi Protected Setup Information - WPS Current Status: unConfigured - Self Pin Code: - SSID: - Authentication Mode: Disable - Passphrase Key: - WPS Via Push Button: - WPS via PIN:
Security	WEP	Y	WEP(64/128bit)
	WPA/ WPA2	Y	WPA-PSK（Personal）,WPA2-PSK（Personal）,WPA/WPA2-PSK(Personal), WPA-EAP（Enterprise）, WPA2-EAP（Enterprise）,WPA/WPA2-EAP(Enterprise)–
	TKIP/ AES	Y	TKIP / AES
	Hidden ESSID	Y	
	MAC address filtering	Y	MAC address filtering (Both in WLAN and LAN), up to 50 field
	L2 Isolation	Y	
Desired / Preferred SSID BSSID Support		Y	Profile item can be arranged for preference Profile on the top represents higher preference User is allowed to move profile UP/Down
Site Survey		Y	Scan current AP, display information: SSID, MAC, Channel, Security, Signal, Mode (Infra/Adhoc) Allow to add to AP profile (preferred SSID)
Channel Bandwidth Selection		Y	N Mode: 20,. 40, Auto
		Y	B/G Mode: 10, 20, Auto

Functional List

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice. 4/28/2010

Router function On/Off Button			N	Router function on/off * (in web UI) --UI option to enable/disable routing function --when routing function disabled, WAN port setting will NT be shown. (DHCP also disable) ON: Full wireless router function (Default Router IP:192.168.1.1) OFF: Wireless AP & Switching HUB function(Default Router IP:192.168.1.1)
LAN Settings			Y	IP (check validity and DHCP server IP range) MAC
DHCP server			Y	DHCP Range, Lease Time, Client list
Router	NAT/ NAPT		Y	
	Port Forwarding		Y	
	Port Mapping		Y	Virtual Server: every single IP should support more than one service port (UI forbids that)
	Port Tagging		Y	
	ALG		Y	FTP and Popular network applications (TBD)
	VPN	VPN pass-thru	Y	PPTP, IPSEC, L2TP passthrough
		Server Type	Y	PPTP, IPSEC, L2TP
		Encryption	Y	56bit (DES), 168bit (3DES), 256bit (AES)
		Max tunnels	Y	
		Key management	Y	Pre-shared key
		Authentication	Y	MD5/SHA-1
	QoS		Y	MAC/ IP/ Port base bandwidth control
			N	MSSID based bandwidth control
			N	Physical port-based bandwidth control
	Filtering	URL	Y	URL-Keyword blocking, 20 site can be registered
		IP	Y	IP Filtering with scheduling function
		Port	Y	TCP / UDP
		ICMP	Y	
	Block Ping From WAN		Y	Enable / Disable option box (DoS)
	DMZ		Y	DMZ Support
Firewall	SPI		Y	Stateful Packet Inspection
	Anti-DoS attack		Y	Hacker Shield

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice. 4/28/2010

Dynamic DNS		Y	
Jumbo Frame Support		Y	9216bytes
IPv6 Support		N	IPv6
LAN side VLAN function		N	
Change in WAN side MAC address		Y	Clone WAN port MAC supported
WAN side form	PPPoE	Y	PAP/CHAP/MS-CHAP / MS-CHAPV2
		Y	**Always (keep trying if fail)**
		Y	**On demand / Manual**
		Y	**Idle Time Out(disconnect if idled for a certain time)**
	Multi PPPoE	N	
	DHCP Client	Y	
	Fixed IP	Y	
SNMP	SNMP V1/ V2C	N	- SNMP Active : Disabled / Enabled - SNMP Version : V1/V2c/ALL - Read Community : - Set Community : - System Location : - System Contract : - Trap Active : Disabled / Enabled - Trap Manager IP :
	MIBI, MIBII	N	
	Private MIB	N	
Administration		N	User Name
		Y	Password
		Y	Confirmed Password
		N	Authentication Data should be encrypted while transmission
Remote Login		Y	Enable / Disable Checkbox
		Y	Management Port
VLAN Management		N	VLAN Active: Disabled / Enabled Special VLAN ID: 1~4095
Backup/ Restore Setting		Y	Save Current Setting Restore Saved Setting Reset to Factory Default
Firmware Upgrade		Y	Firmware Upgrade Firmware Recovery

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice. 4/28/2010

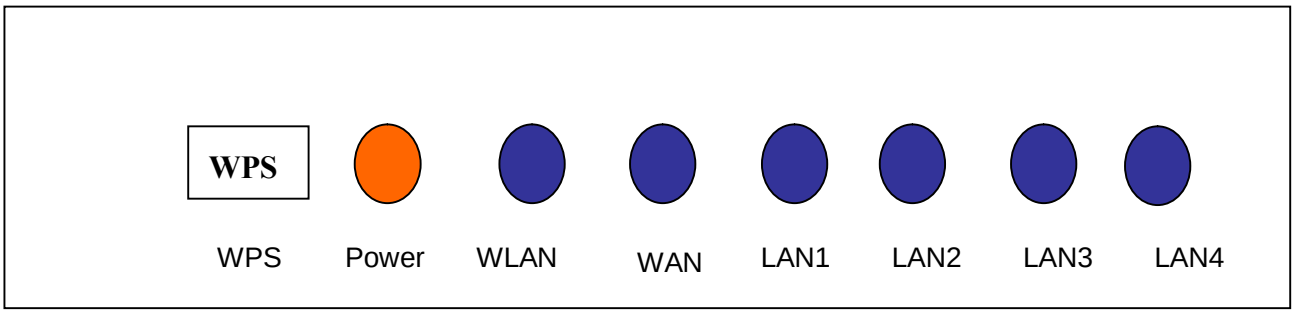
Display at time	NTP	Y	
	Manual setting for Time Server	Y	
E-mail Notification function		N	(Email Alert Setting)
UPnP		Y	
Discovery Tool		N	A scanner for existing devices Must list device IP and MAC
Power Saving		Y	Save energy for WLAN and LAN interfaces. - WLAN : Enable / Disable - Ethernet : Enable / Disable
Diagnosis		Y	Address to Ping : Y Ping Frequency : N
			Telnet Server: N
CLI		N	Command Line Interface (accessible only with special account) For RMA, SQA, Engineering purpose
Emergency Recovery Page		Y	A self-aid page for users in case of firmware upgrade failure
Captive Portal		N	WiFi-Dog
FTP Server		N	Folder root on USB device User Account management Allow external access on/off Nte: character coding?
SAMBA		N	Windows Compatible file sharing Nte: character coding?
Web-Based File Server		N	File download / upload Allow external access on/off

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

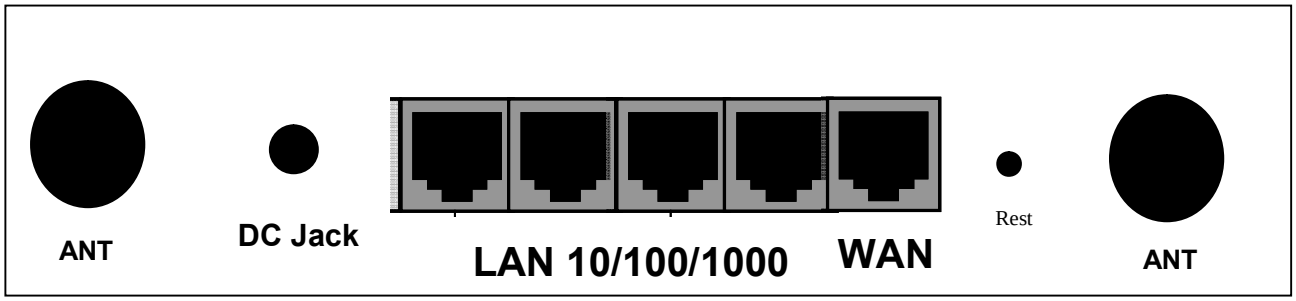
** All specifications are subject to change without notice. 4/28/2010

➢ **Top Panel (LED status)**

WAN	1 (Link-> blue on, traffic->blink)
LAN	4 (Link-> blue on, traffic->blink)
WLAN	1 (Link-> blue on, traffic->blink)
Power/Status	1 (On-> red Test/reset default->blink)



➢ **Rear Panel (Interface)**



ENVIRONMENT & PHYSICAL

Temperature Range	0 to 45° C - Operating, -10 to 70 ° C - Storage	
Humidity (non-condensing)	15%～95% typical	
Dimensions	PCB	TBD
	Housing	170mm (L) x 111mm (W) x 26mm (H)

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice. 4/28/2010